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No. 8

Bilions Remittent Fever

Passed March 22d 1824
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An

Inaugural Dissertation

on the

Bilious Remittent Fever.

As it appeared along the Banks of Schuylkill, and in the Great Valley of Chester County, Penna. in the Summer and Autumn of 1822 & 1823.

By

Charles Wayne A. B.

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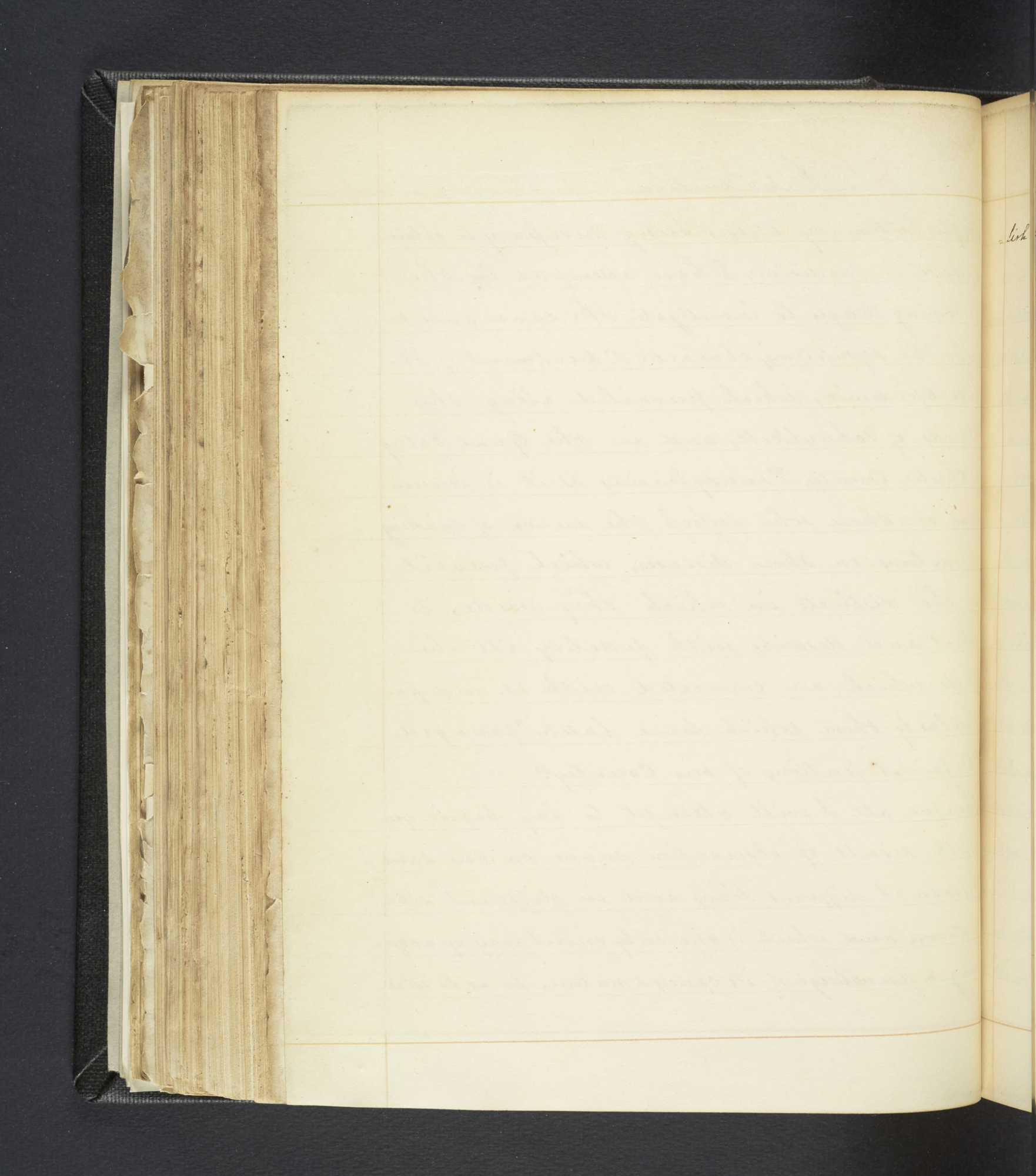
Introduction.

A probationary thesis being necessary to obtain a degree in Medicine, I have attempted in the following pages to investigate the cause and progress, the symptoms, character & treatment of the late Epidemic, which prevailed along the Banks of Schuylkill, and in the Great Valley of Chester County, Pennsylvania, as it is incumbent on those who profess the means of making observations on those diseases, which prevail in the districts in which they reside, to collect and describe with fidelity all the facts which are connected with it, and particularly those which have lately "ravaged the fairest portions of our Country."

Therefore all I will attempt to lay before you is, the result of observation made on the same disease at different times and in different situations, and which is the only correct way of acquiring a knowledge of its causes & nature, so as to estab=



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History of the Epidemic &c.

Amongst the earliest cultivators of medical science, certain states & conditions of the atmosphere were ascribed as powerfully influencing the causes of the production of diseases.

It was mentioned by Hippocrates the "Father of Medicine" to depend on the natural & known causes of change of air, he also speaks of a "divine principle" (Θειον) to be the cause of fevers:

In a similar manner Diemeibroek mentions the "Seminarium e coelo dimissum" to be the cause of the same diseases.

And the illustrious Sydenham also ascribes this peculiar constitution of the atmosphere, to exhalations arising from the bowels of the earth, for in describing one of the Epidemics in London he says, "That the changes of the constitution depend principally, on some secret & hidden alteration in the bowels of the earth, communicated to the whole atmosphere."

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Such appears to have been the opinion of our Fathers in Medicine, concerning the production of fevers: But let us advance into the present age of medical science, and we will find that certain states of the atmosphere termed, "Constitutions of the air" do produce certain grades of fever, arising from vegetable putrefaction; termed Marsh Miasmata. That these arise from vegetable putrefaction, can be clearly shown from the observations made on the Epidemic.

During the Summer and Autumn of 1822 & 23, the waters of the Schuylkill were uncommonly low, a large number of logs and stumps, which were formerly covered by the bed of the river, were now exposed to the action of the sun:

We all know that wood remains sound under water for a long time, but as soon as it is exposed to the sun it decays very fast.

Below the dams a large number of sand bars were

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formed on which a great quantity of vegetable matter was lodged & being exposed to the sun, putrefied & became accessary in producing miasmata. Beside these a number of Swamps & Mill dams in the vicinity of Schuylkill became perfectly dry from the drought, which commenced early in the Summer & being covered with a luxuriant growth of high & thick grass, which died in the latter end of Summer and being trampled in the mud by the Cattle, & exposed to the Sun, — Affords another proof that miasmata is formed in this way. During the continuance of the drought the appetites of the inhabitants along Schuylkill for solid food were impaired, whilst their thirst was generally excessive & the discharge of perspirable matter profuse, in consequence of this, their strength was greatly diminished, & their system less able to resist the action of morbific disease. All the inhabitants in the vicinity of these dams

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And swamps were attacked more violent, and with symptoms more malignant; There were also two or three deaths particularly amongst children in this neighbourhood.
Exhalations thus arising contaminate the whole Atmosphere, & carried over a great extent of Country by the winds never fail to produce Bilious & Intermittent fevers.
The chemical nature of Marsh Miasmata is not very well understood, By some it is supposed to be composed of Hydrogen united with Sulphur & Carbon, Phosphorus & Nitrogen in unknown proportions, By others it is supposed to consist of Animalculae produced by the putrefaction of animal & vegetable matter, But all the certain knowledge that we can obtain is, that it is a matter highly deleterious and poisonous, that it arises from animals & vegetables during their putrefactive process,

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That its influence upon the system is wide and pervading.

The Epidemic made its appearance about the first of August along the Banks of Schuylkill, & extending several miles below Norristown, & as far up as Pawlings Bridge, in the neighbourhood of the Valley Forge, on the Northern side of the Great Valley, (being the part adjacent to Schuylkill). attacking almost every family.

There were also, a few cases in the Valley.

It is well known that the inhabitants of miasmatic districts, are capable of retaining miasma for a great length of time without exercising its effects upon the system, and would remain quiescent if not exposed to some exciting cause, as was remarked that some persons went through the whole Epidemic season without being attacked, and then being exposed to some exciting cause, brought it into action.

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Thus we see over the general constitution of the Atmosphere, man has no power, or that therefore in the prevention of diseases he cannot operate, nor can he escape from it, unless by retreating to a distant region.

It was remarked that the change of air and the increase of humidity spread the disease. Those persons who exposed themselves by riding in the night air & in the Sun were more particularly liable to an attack.

There were also different Idiosyncrasies which required the same predispositions to bring them into action: These were night watchings, anxiety, grief &c.

And the liability to an attack was in a great many instances, brought into action by the improper use of ardent Spirits.

It was remarked that those persons who were not attacked with this fever, — had Dysentery

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which generally yielded to the usual remedies.
As it is mentioned by the highest authority that winds blowing in a certain direction, & that heat & moisture combined, are capable of producing certain Epidemic constitutions, I will proceed to mention the meteorological observations made on the Farm of Dr. William Harris in the district where the disease prevailed.
The Spring of 1822 was generally dry & backward, we had very little rain in March, April and May: and generally healthy.
In June the warm weather commenced, the Crops of hay, & the harvest was less abundant this year, than it has been known for many years; In this month Intermittents began to prevail along Schuylkill & amongst the workmen at the Valley Forge; The mean Temperature was 75°.
July was generally warm and dry, The Thermo=

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=meter stood at 86° on the first, & at 88° on the twentieth, it rained only three days, this month, The Remittent fever made its appear=ance this month. Cholera Morbus & Intermittents also prevailed, There was a fog always seen in the neighbourhood of the Valley Forge, and along Schuylkill every morning, which disap=peared in the middle of the day. The wind generally blowing from the S. W. Mean Tempe=rature 82°.

August was warm and dry, The Thermometer stood at 88° on the fourth & at 89° on the twentieth, The wind still continuing in the S. W. It rained three days this month, Mean. Temp. 88°. Bilious fever still increasing.

September was warm & dry, There was 4 days rain this month, The Mean Temp 75°. The wind in this month changed for the first time from the S. W. to N. E & in a few days several families, in

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the valley were attacked with the prevailing fever.

I shall now proceed to make a few remarks upon the character & treatment of the Epidemic,

No class of persons were exempt from this fever, all ages & both sexes were attacked.

The symptoms which generally introduced this fever were langua, heaviness, disinclination to exercise, frequent yawnings & stretchings, rigors which run up the back, & along the extremities, pulse small & quick, — respiration difficult, which continued for two or three hours, during which time the patient complained of great pain in the head, back & limbs.

In some cases the patients were attacked with giddiness of the head, & being raised to an upright position, syncope was immediately produced, and some were attacked with convulsions, particularly children.

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And on the accession of the fever, the pains in the head & eyes, back & limbs were excruciating.
The pains in the back were sometimes so acute, the patient could not lay in bed.
The patient complained of great nausea & sometimes vomiting of bilious matter took place, accompanied with a disagreeable taste in the mouth, - the tongue was covered with a yellow fur, - the eyes became sallow, - the respiration full & easy, - the pulse full & quick though never hard, there was also great tenderness about the Epigastric region.
A great thirst & dry skin always attended this fever, - The urine was highly coloured & in its usual quantity.
These symptoms generally continued from four to eight hours, which were succeeded by a relaxed skin & a profuse moisture over the whole surface.
In a number of cases a rash appeared on the third

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or fourth day covering the whole body which generally passed off the other symptoms.
There were generally remissions of this fever every morning & evening, & the exacerbations were severest every other day, — there were sometimes several exacerbations in the same day.
When this fever did not terminate on the third or fourth day it assumed a typhus character, which ran on sometimes to the eleventh or fourteenth day, and which was generally known by the tongue assuming a dry, smooth & glossy appearance, and afterwards covered by a dark brown crust.
The paroxysms in this stage of the fever, were generally attended with delirium, which lasted for six a eight hours, when they abated with a sweat which diffused over the whole body.
They were generally liable to relapses if they exposed themselves to the original exciting causes.

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I shall now detail the method pursued in the treatment of this fever.

Called to a case of this fever our first attempt was to cleanse the Alimentary canal, and experience has proved to us that our first remedy should be an Emetic, unless forbidden by an advanced state of pregnancy, or a habitual predisposition to vomit blood; there was always a great accumulation of bile & other acrimonious matter which aggravated every symptom.

Sometimes the disease was removed entirely by giving an Emetic in the forming stage; In all cases where there was much nausea, purges had no good effect, for they were generally rejected; but in all cases where the Emetic was given, it never failed to throw up a great quantity of bile which generally relieved the patient very much of all his symptoms, particularly the pain in the head, which in some cases was very distressing; It also

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Produced a determination to the surface & removed the constriction of the extreme vessels which proved to be very beneficial.

As the stomach the chief seat of the disease, has a strong sympathy with the whole system, its beneficial were widely diffused, & which being completely cleansed produced an abatement, or a more distinct remission than was before.

It appeared also of great service when nothing was thrown up beside the Emetic itself & the water.

Five grains of Emetic Tarter was put in four table spoonfuls of water, one of which was given to Adults every half hour until it commenced operating, then the Emetic was thrown aside and the vomiting promoted by drinking very plentifully of warm water.

Exhibited in this manner, it generally proved both Emetic and Cathartic & effectually cleansing the whole alimentary canal of its acrimonious load.

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If the Emetic failed to open the bowels, I generally prescribed purges of Calomel and Jalap which never failed to bring away dark stools of a highly bilious nature, which afforded great relief to the patient. In those cases where Emetics were thought to be inadmissible, or, where there was prejudice against them, the bile was discharged entirely by purges of this kind, & afterwards kept the bowels open by Laxatives & Enema.

Active cathartics given in the last stage of this disease always produced a return of the fever, & endangered the life of the patient.

After evacuating the contents of the stomach & bowels, the next indication was to excite a general perspiration, for this purpose was used, small doses of Nitre, Calomel and Tarter Emetic, which after reducing arterial action, and relaxing the surface had the desired effect of changing the remissions to Intermissions; In some cases it kept the bowels open,

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And discharged the bile as fast as it was accumulated. The drinks recommended to patients in this stage of the disease, were, Balm, Sage & chamomile teas, toast & water, weak lemonade, tamarind & Apple water, wine whey &c.

In a great number of cases the fever terminated on the third or fourth with a profuse perspiration, relieving the patient from all his pains, his pulse remaining weak.

After distinct intermissions had been formed the system was then prepared for other remedies, and amongst these Cinchona stands the highest, and claims our first attention.—

In the Epidemic of 1822 it never failed to terminate the fever in a few days & likewise to strengthen the system.— That is when given during a complete intermission, but if the intermission was incomplete it never failed to do mischief! But in 1823 it did not prove so successful, which was accounted

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For, by the adulteration of the article, for in some cases it was given to the amount of two or three ounces without producing any good effect. My mode of prescribing the Cinchona was to give a teaspoonful every two or three hours in some convenient vehicle, until the fever returned, then the bark was thrown aside & Diaphoretic medicine resumed, at the next intermission the bark was resumed & so continuing on until the fever terminated entirely: When the bark in substance could not be retained, I prescribed the Bark tea as it was called, & in most cases answered very well, it was generally made by pouring a pint of boiling water on a half an ounce of the best red bark, to which Cloves or Ginger was added to make it more agreeable to the stomach, — a wine glassful was given to Adults every hour during the intermission. In some cases the bark was refused in every form

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By the mouth.— The Enema of bark proved succ-essful.— I principally relied on this mode of treat-ment in cases of Children.

In the Epedemic of 1823 I used the Sulphate of Quinine in obstinate cases with great success and it will be found to be an invaluable medicine on account of its being retained on the most irrit-able stomach, & being so easily taken & making so much stronger impression upon the stomach with a smaller quantity.

I generally prescribed it in pills containing one grain each, one of which was given to Adults every hour, and in most cases ten pills were suf-ficient to arrest the progress of the fever.

The Dogwood (Cornus Florida) was very much used by some families, as a substitute for the Peruvian Bark, & it may be justly ranked one of the best Tonics of our country, in some cases it proved more successful than the Cinchona, as yet I believe

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No other article has been found in the United States to answer the purpose of Cinchona so well as the Cornus Florida.

I generally prescribed it in decoction combined with the bark of the root of the Laurus Sassafras or the common Sassafras of our Country, in the following manner, - I ordered ℥iv of the Dogwood Bark & ℥ij of the root of Sassafras to be put in two quarts of water & boiled down to a quart, and a wine glassful was given every two or three hours.

If the fever continued beyond the third or fourth day, I always had recourse to Blisters, they were generally applied to the ancles & produced a most excellent effect; If they failed to produce an intermission, two more were applied to the wrists & almost always produced an excellent effect, or an intermission the day after they were applied.

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If the fever did not yield to Blisters, it assumed a typhus character, & nothing answered so well in these cases as Dovers powders, repeated once every three hours aided by wine whey and the vapour bath, and continued until sweating was induced, which was kept up for some time, and if properly attended too the patient always recov-ered.

As co-operating means, I prescribed the Bark com-bined with some aromatic, Madeira wine, hot toddy, Brandy & water &c.

If these means failed & the pulse sinking, Sinapisms, frictions with Brandy & Cayenne pepper, or Spts. of Turpentine were used with the greatest possible advantage.

Venesection was not demanded in any case which came under my notice, nor did the Pulse indicate any signs of inflammation.

Convalescence was marked by several extraordinary

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Symptoms, some complained of a bitter taste in the mouth, others of nausea & a total want of appetite.

A weakness of the knees was a constant attendant during convalescence.

To remove these symptoms, I gave the Tincture of Bark, & Elixir of Vitriol in frequent doses.

Great advantage was derived from oysters, and a liberal use of Porter when they could be procured.

The